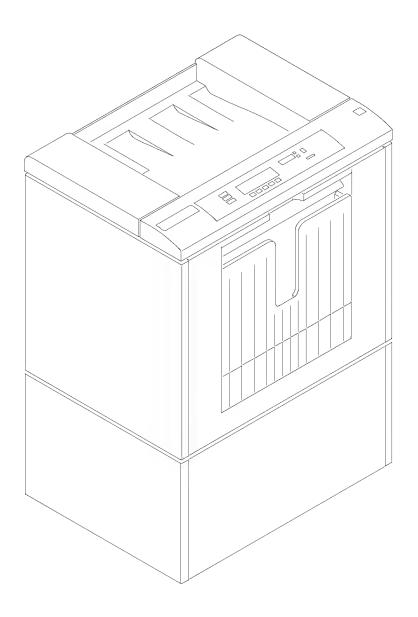




INSTALLATION INSTRUCTIONS for the Kodak X-Omat 270 RA PROCESSOR



H104_0107DA

PLEASE NOTE

The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

No patent license is granted by this information.

Eastman Kodak Company reserves the right to change this information without notice, and makes no warranty, express or implied, with respect to this information. Kodak shall not be liable for any loss or damage, including consequential or special damages, resulting from the use of this information, even if loss or damage is caused by Kodak's negligence or other fault.





This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

Table of Contents

Description	Page
Preliminary Items	3
Special Tools Required	3
Electrostatic Discharge	4
Preparing the Processor for Installation	5
Unpacking the Processor	
Moving the Processor into Position	
Installing the Light-Lock Gasket	
Installing the Brackets	
Installing the Racks, Crossovers, and Water Disconnect	11
Installing Floor Plates and Leveling the Processor	12
Installing the Seismic Brackets	
Connecting the Processor	16
Making the Electrical Connections	
Making the Plumbing Connections	21
Installing and Adjusting the Feed Shelf	26
Checking for Correct Operation	27
Publication Change Table	29

Preliminary Items

Special Tools Required

The following tools are required:

Tool or Part No.	Description
TL-1434 TL-2431 TL-4391 TL-4430 699574	Portable Computer * Level - approximately 30.5 cm (12 in.) Air Meter Interface Cable PROM Extraction Tool Diagnostics Diskette

^{*} The Portable Computer should meet the following requirements:

MS-DOS version 3.3 or higher

RS-232 serial communication port configured as COM1

3.5-inch, 720 kilobyte disk drive

640 kilobyte RAM

20 megabyte hard disk

IMPORTANT

- Use only qualified personnel to install the PROCESSOR.
- Before installing the PROCESSOR, review the Section "Electrostatic Discharge" on page 4 to ensure that components do not become damaged while you are installing the JUMPERS in the PROCESSOR.
- Hardware is provided to secure the WALL BRACKETS to the PROCESSOR. Hardware to secure the BRACKETS to the wall is provided by the customer. Check that the hardware is available before beginning the installation.

Electrostatic Discharge

Overview

ESD--electrostatic discharge--is a primary source of:

- · product downtime
- · lost productivity
- · costly repairs

While one cannot feel a static charge of less than 3,500 volts, as few as 30 volts can damage or destroy essential components in electronic equipment.

Effective ESD control requires following these guidelines.

Personnel Awareness

Everyone within the organization needs to be aware of ESD, because partial ESD control is no ESD control at all. Please note:

- ESD is a primary source of frustrating equipment failures and intermittent malfunctions.
- ESD affects productivity and profitability.
- · ESD can be controlled.

General Precautions

- · Do not store trash near static-sensitive equipment.
- Do not place plastic materials near electronic components. Trash-can liners and styrofoam cups generate static electricity, which can damage or destroy electronic components.

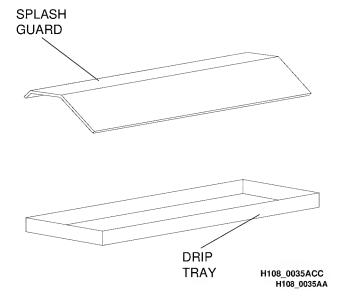
Preventive Measures

- Always look for an ESD warning label before doing any procedure involving static-sensitive components such as circuit boards. All static-sensitive components are marked with bright graphic labels, which frequently include instructions. Follow all label instructions.
- If the work area is carpeted, spray the carpet with an antistatic solution. In low-humidity environments, spray carpets periodically with an antistatic preparation, available at local stores.
- Wear a grounding strap when handling static-sensitive components. Always make certain that the clip remains attached to a properly grounded, unpainted, clean surface.
- Repair static-sensitive components at an ESD-protected work station or use a portable grounding mat. For help in setting up an ESD-protected work station, contact your Kodak representative.
- When moving static-sensitive components from one area to another, insert and transport the components in ESD-protective packaging.
 Transparent antistatic bags are available from a variety of manufacturers and will help shield components from ESD damage.

Preparing the Processor for Installation

Unpacking the Processor

- [1] Cut and remove the bands around the outside of the carton.
- [2] Remove and discard the carton and the plastic.
- [3] Separate the carton for the PROCESSOR from the carton for the STAND.
- [4] Remove the carton that contains the instruction manual and loose parts from the top of the PROCESSOR.
- [5] Remove the SPLASH GUARD and DRIP TRAY located under the PROCESSOR.
- [6] Remove:
 - (a) YOKE
 - (b) DEVELOPER/FIXER CROSSOVER
 - (c) FIXER/WASH CROSSOVER
 - (d) DETECTOR CROSSOVER
 - (e) TOP EXIT RACK



- [7] Remove the packing material that protects the DEVELOPER RACK, FIXER RACK, and DRYER RACK.
- [8] Remove the DRYER RACK.

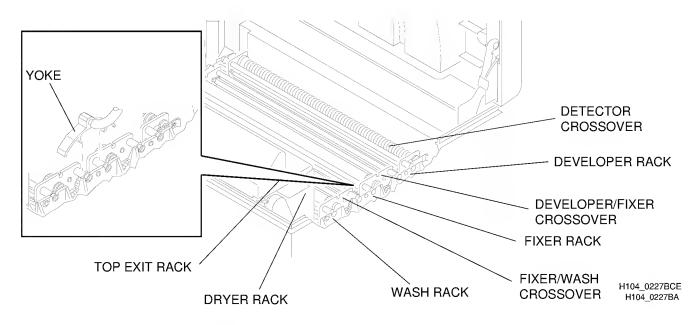


Figure 1 Removing the Racks and Crossovers

- [9] Remove the front DRYER COVER from the DRYER RACK.
- [10] Remove the packing material from the front and back of the drive end of the AIR TUBES.
- [11] Remove the DEVELOPER RACK, FIXER RACK, and WASH RACK. See the Figure 1 on page 5.
- [12] Use the Packing List to check the contents of the carton that has the PROCESSOR.

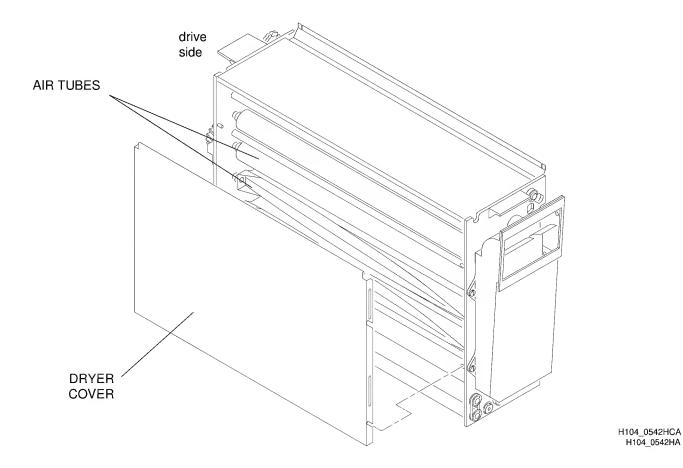


Figure 2 Unpacking the Dryer Rack

- [13] Remove the 2 HEAT EXCHANGER PROTECTORS.
- [14] Remove the packing material from the bottom of the DEVELOPER TANK and FIXER TANK.
- [15] Tighten all adjustable metal band HOSE CLAMPS.

IMPORTANT

All adjustable metal band HOSE CLAMPS in the PROCESSOR must be checked for tightness when installing the PROCESSOR. The HOSE CLAMPS may be tight at the factory, but cold temperatures or shrinkage of the plastic tubing can occur within 2 - 4 weeks.

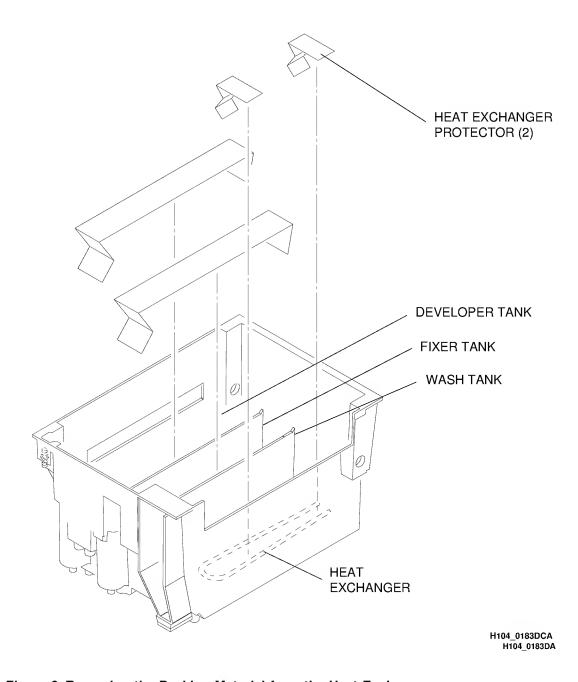


Figure 3 Removing the Packing Material from the Heat Exchangers

Moving the Processor into Position

WARNING

The weight of the PROCESSOR is 125 kg (275 lb).

- [1] Unpack the STAND.
- [2] Install the LEVELING SCREWS on the STAND. See Figure 5.
- [3] Remove the FRONT PANEL of the STAND.
- [4] Place the PROCESSOR on the STAND.
- [5] Insert each of the 4 MOUNTING BOLTS through the STAND into the PROCESSOR near the 4 corners.
- [6] Tighten the 4 MOUNTING BOLTS.

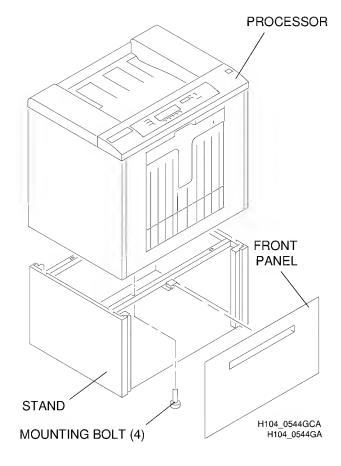


Figure 4 Installing the Processor on the Stand

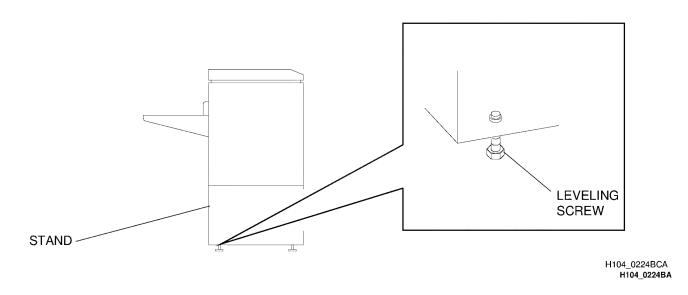
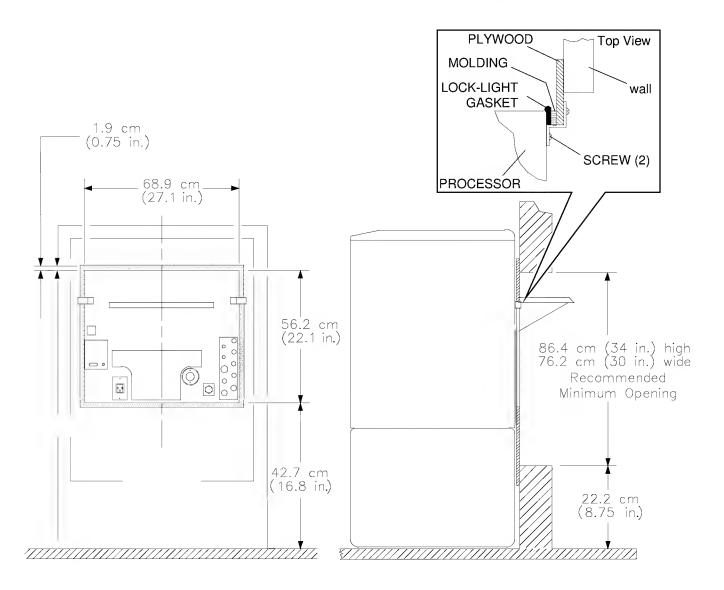


Figure 5 Installing the Leveling Screws on the Stand

NOTE

This installation procedure assumes that a hole has already been made in the wall for the PROCESSOR and the PLYWOOD mounted to the wall around the hole. Recommended minimum size of the hole is 87 cm x 76 cm (34 x 30 in.) at the correct height from the floor. See Figure 6 and the Site Specifications, Publication Part No. 2B6842.

[1] Install the LIGHT-LOCK GASKET to the MOLDING. See Figure 7 on page 10.



H104_0082DCA P104_0082DA

Figure 6 Installing the Light-Lock Gasket

Installing the Brackets

[1] Install the 2 BRACKETS to the PROCESSOR. See Figure 7.

IMPORTANT

- 2 SCREWS, 2 LOCK WASHERS, and 2 WASHERS are provided to install each BRACKET to the PROCESSOR.
- Hardware to install the BRACKETS to the PLYWOOD is provided by the customer.
- · Do not install the BRACKETS to the PLYWOOD now.

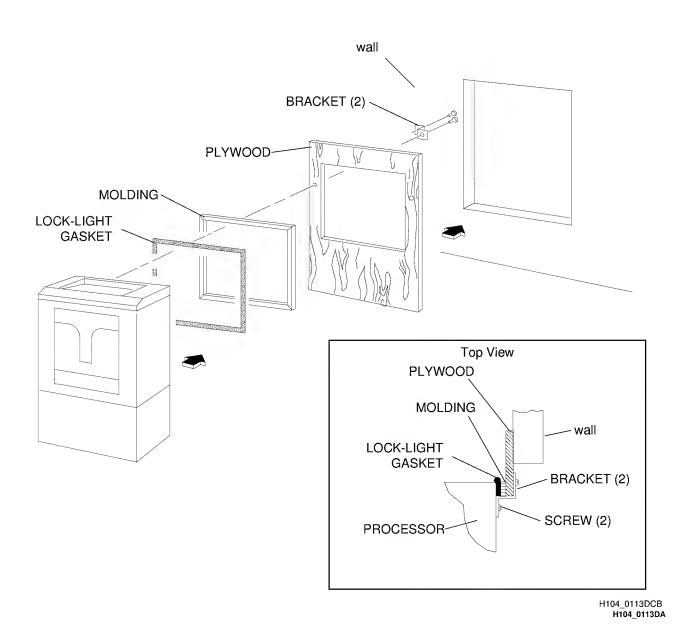


Figure 7 Installing the Brackets

Installing the Racks, Crossovers, and Water Disconnect

- [1] Install:
 - DEVELOPER RACK
 - FIXER RACK
 - WASH RACK
 - DRYER RACK
 - DETECTOR CROSSOVER
 - DEVELOPER/FIXER CROSSOVER
 - FIXER/WASH CROSSOVER
 - TOP EXIT RACK
 - YOKE

- [2] Connect the WATER DISCONNECT for the WASH RACK to the FITTING.
- [3] Check that all parts are seated correctly.

NOTE

An optional conversion kit is available to convert the film exit path from the top of the PROCESSOR to the feed end. Order CAT No. 815-1367.

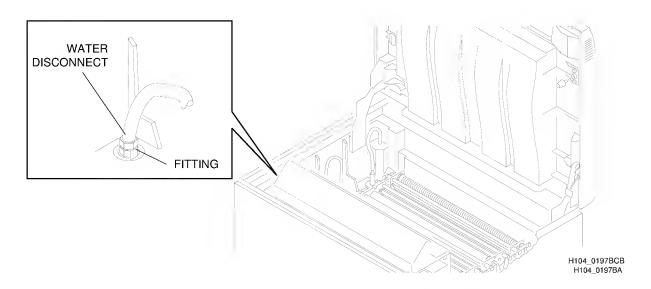


Figure 8 Installing the Water Disconnect for the Wash Rack

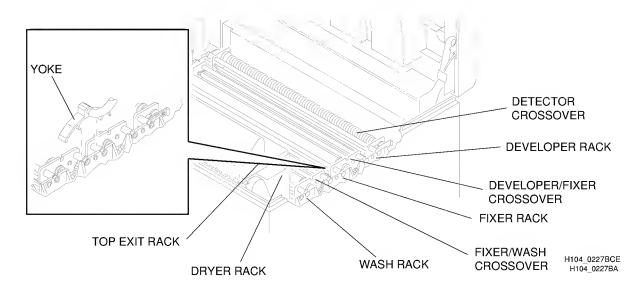


Figure 9 Installing the Racks, Crossovers, and Yoke

Installing Floor Plates and Leveling the Processor

WARNING

The weight of the PROCESSOR is 125 kg (275 lb).

- [1] Move the PROCESSOR against the wall.
- [2] Install the FLOOR PLATES under the LEVELING SCREWS.
- [3] Check that the LIGHT-LOCK GASKET is tight against the PLYWOOD and the PROCESSOR.

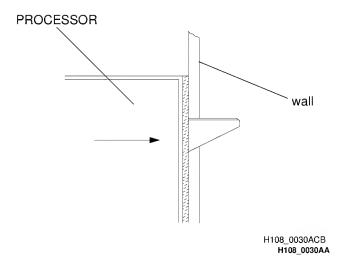


Figure 10 Moving the Processor against the Wall

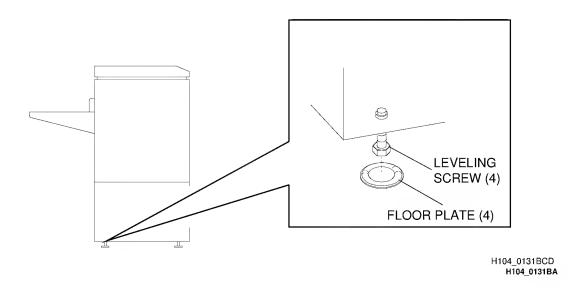
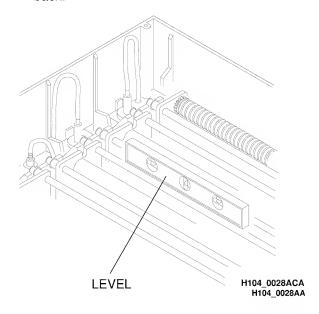


Figure 11 Installing the Floor Plates



The edge of the LEVEL could cause damage to the surface of a ROLLER.

[4] Place the LEVEL TL-1434 on the TIE RODS to level the PROCESSOR from side to side and front to back.



LEVEL H104_0027ACA H104_0027AACA

Figure 12 Leveling the Processor Side to Side



To prevent damage to the LEVELING SCREWS or to the PROCESSOR, do not allow more than 2.5 cm (1 in.) between the bottom of the STAND and the HEAD of the LEVELING SCREW.

- [5] Adjust the LEVELING SCREWS to level the PROCESSOR in both directions.
- [6] Install the BRACKETS to the PLYWOOD. See Figure 7 on page 10.

Figure 13 Leveling the Processor Front to Back

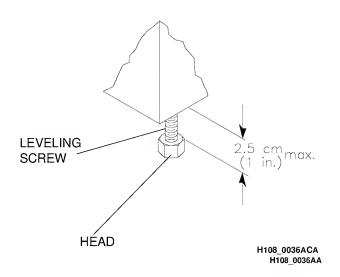


Figure 14 Adjusting the Leveling Screws

[7] Install the 2 EVAPORATION COVERS and WET SECTION COVER.

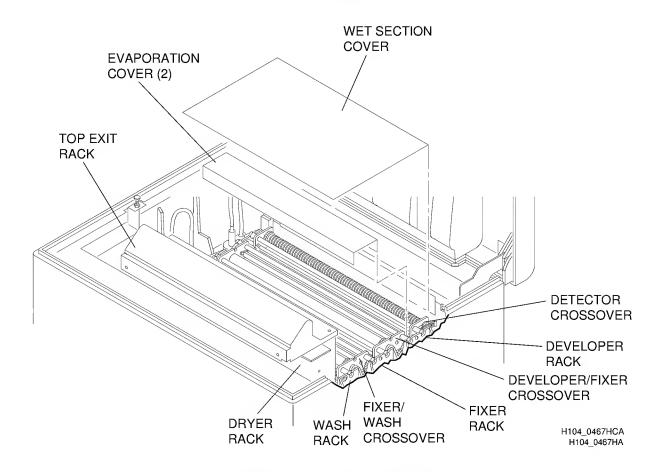
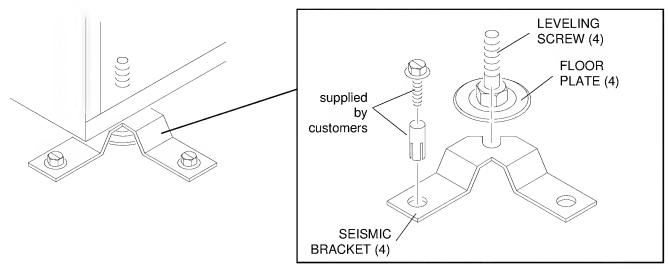


Figure 15 Installing the Evaporation Covers and Wet Section Cover

Installing the Seismic Brackets

[1] If local codes require SEISMIC BRACKETS, install them over the LEVELING SCREWS.



H104_0543BCA H104_0543BA

Figure 16 Installing the Seismic Brackets

Seismic Kit	Part No.
Processor only	914894
Processor with Stand	914895

NOTE

The Seismic Kit contains 4 SEISMIC BRACKETS and installation instructions only.

Connecting the Processor

Making the Electrical Connections

WARNING

Dangerous Voltage.

[1] Determine the customer's electrical service. See the table below.

Service Options

Voltage volts	Frequency Hz	Service
200	50/60	2-wire, single phase
220	50/60	2-wire, single phase
230	50/60	2-wire, single phase
240	50/60	2-wire, single phase
100/200	50/60	3-wire, single phase
120/240	50/60	3-wire, single phase
120/208	60	3-wire, 3-phase*, wye
127/220	50	3-wire, 3-phase*, wye
220/380	50	3-wire, 3-phase*, wye
230/400	50	3-wire, 3-phase*, wye
240/415	50	3-wire, 3-phase*, wye
200	50/60	3-wire, 3-phase, delta
120/208	60	4-wire, 3-phase, wye
127/220	50	4-wire, 3-phase, wye
220/380	50	4-wire, 3-phase, wye
230/400	50	4-wire, 3-phase, wye
240/415	50	4-wire, 3-phase, wye

NOTE

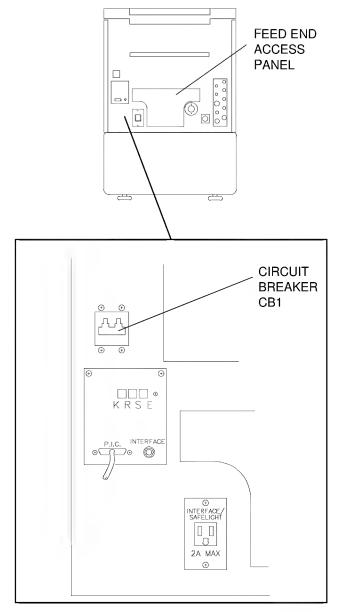
^{*} L1, L2, and Neutral used in this configuration are sometimes referred to as Single Phase Connections.

- [2] Move the customer's wall power switch to the "O" position and lock it in position.
- [3] Check that the CIRCUIT BREAKER CB1 on the PROCESSOR is in the "OFF" or "O" position.

IMPORTANT

All electrical services, **including earth ground**, must comply with all applicable electrical codes.

- [4] Remove the FEED END ACCESS PANEL.
- [5] Install the STRAIN RELIEF. See Figure 18 on page 18.
- [6] Insert the customer's power line for the power source through the STRAIN RELIEF.
- [7] Locate the customer's electrical service in the figures on pages 19 20.



H104_0035CCD H104_0035CA

Figure 17 Locating CB1 and the Feed End Access Panel

- [8] Connect the wires from the power line to TB1. Check that the wires are connected firmly.
- [9] Connect wires 1 4 from the PROCESSOR to TB1.
- [10] Install the JUMPERS packed with the PROCESSOR to TB2 and TB3. See pages 19 20.
- [11] Connect the ground wire that is in the power line to the GROUNDING LUG.
- [12] Install the FEED END ACCESS PANEL.
- [13] Install the correct UL/CSA or VDE LABEL on the inside of the processing TANK, on the drive side.

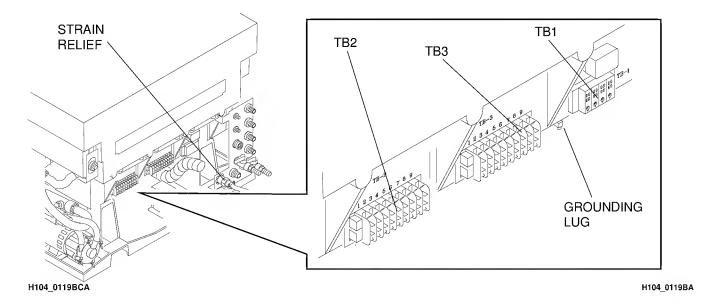


Figure 18 Connecting the Electrical Supply

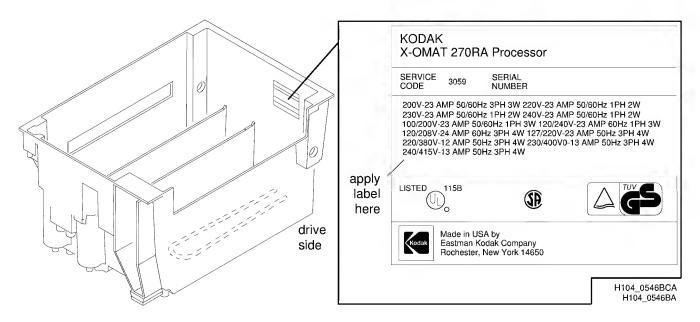
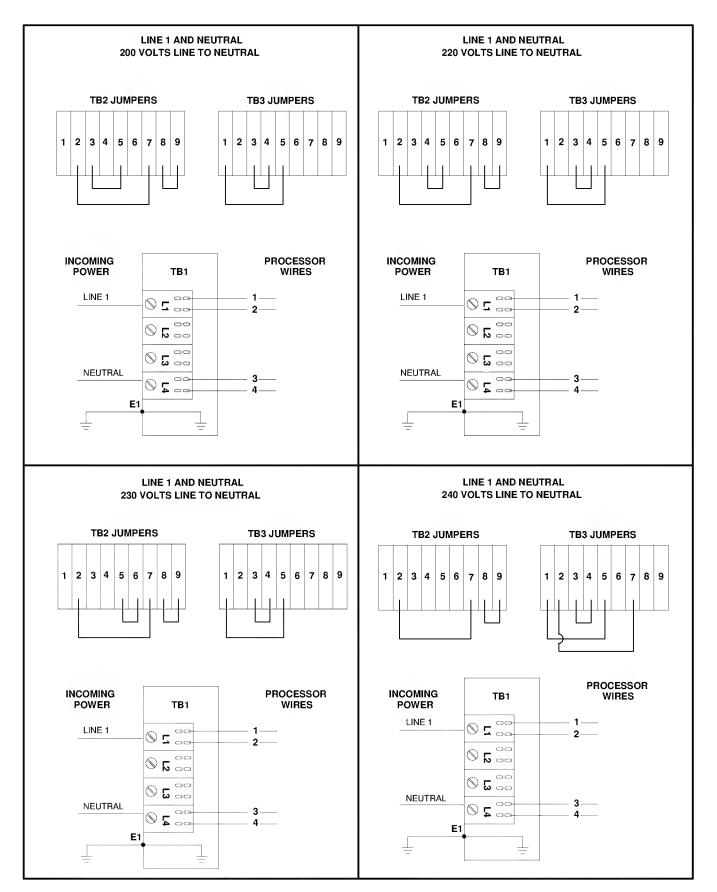
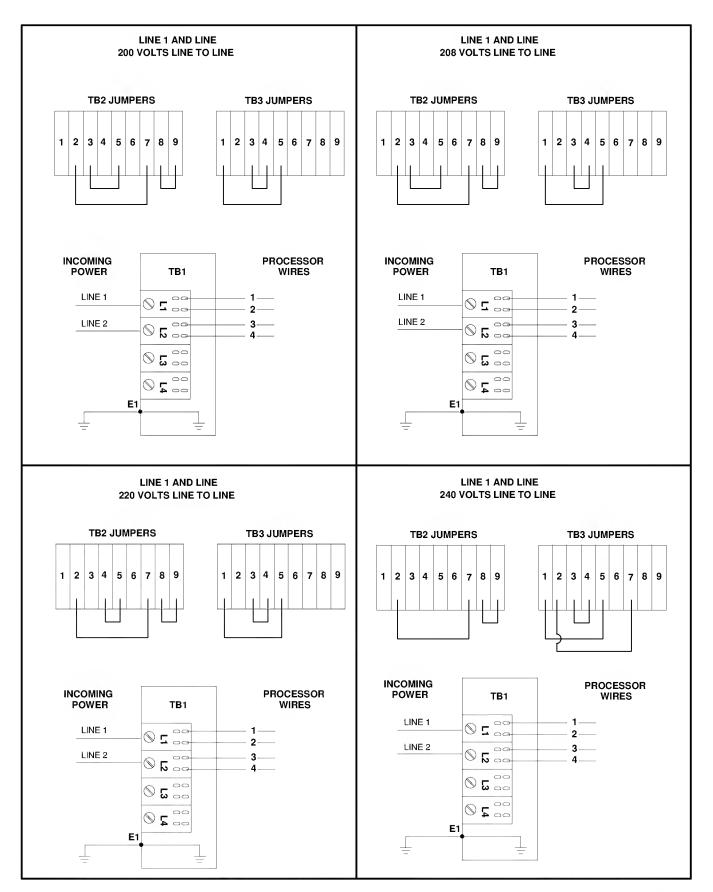


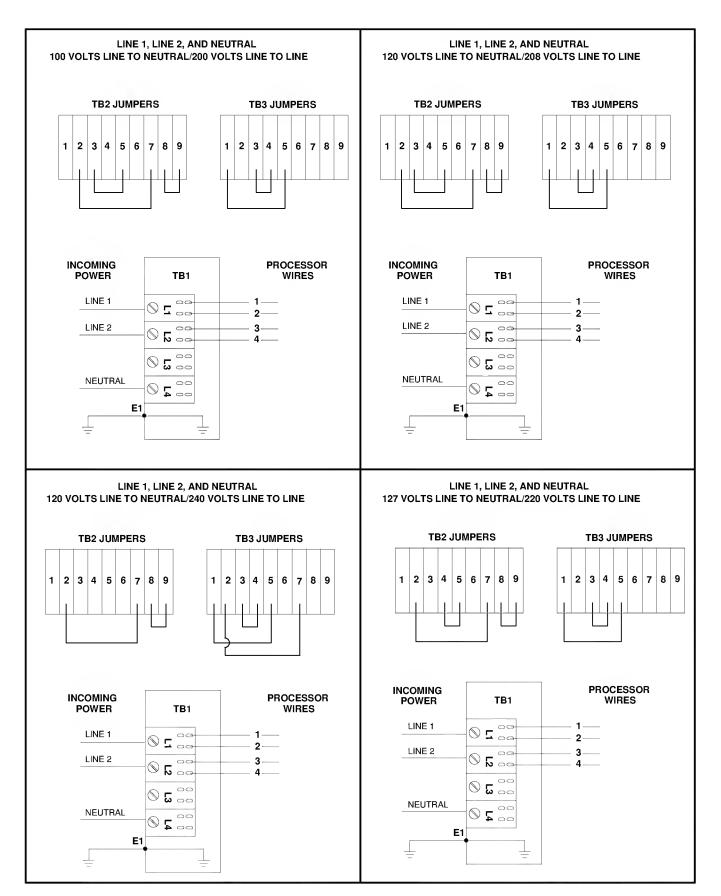
Figure 19 Applying the UL/CSA or VDE Label



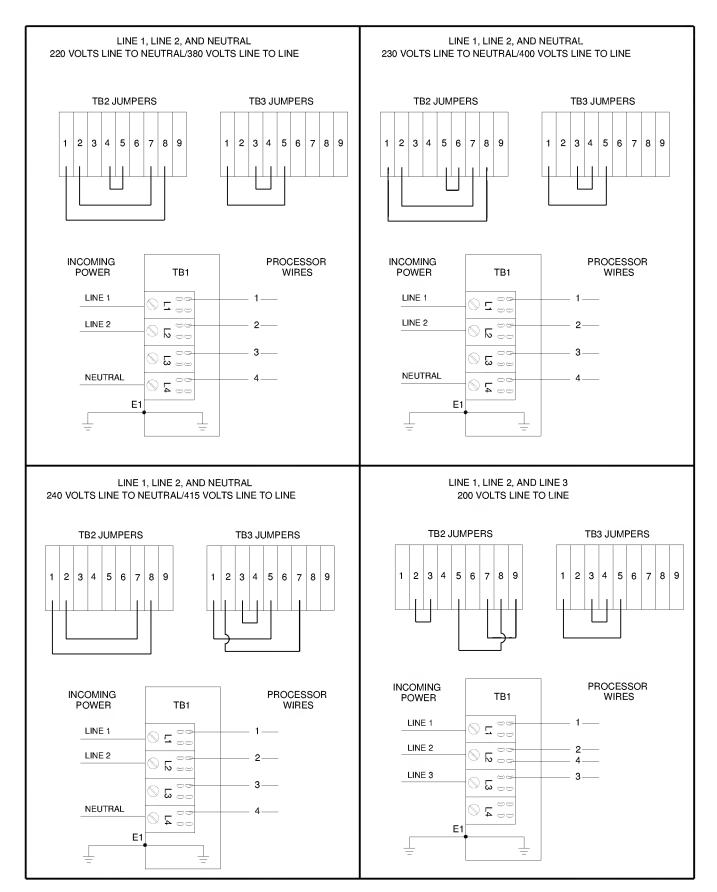
H104_9041EC



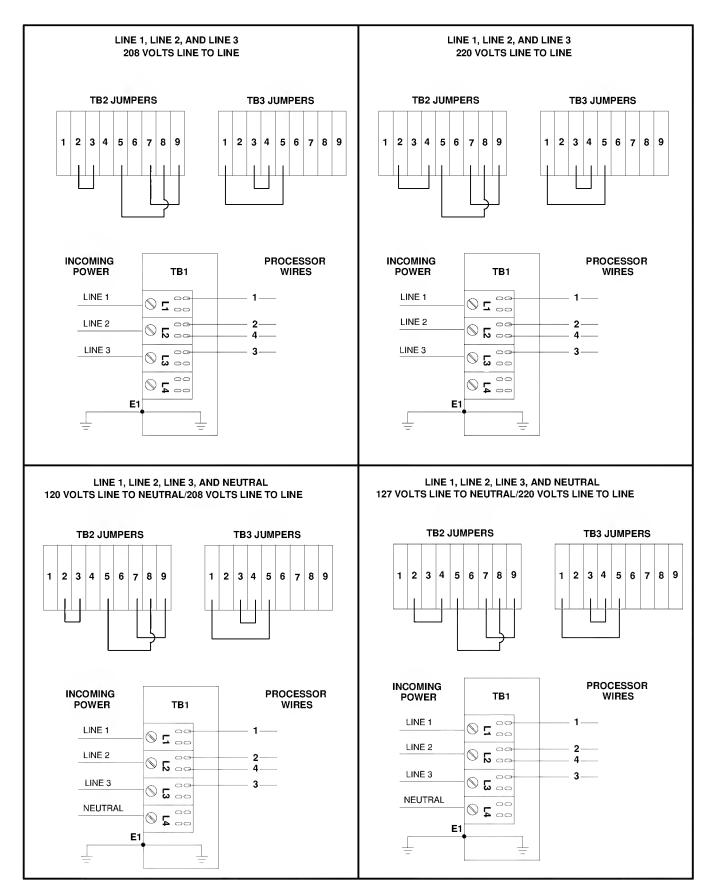
H104_9042EC



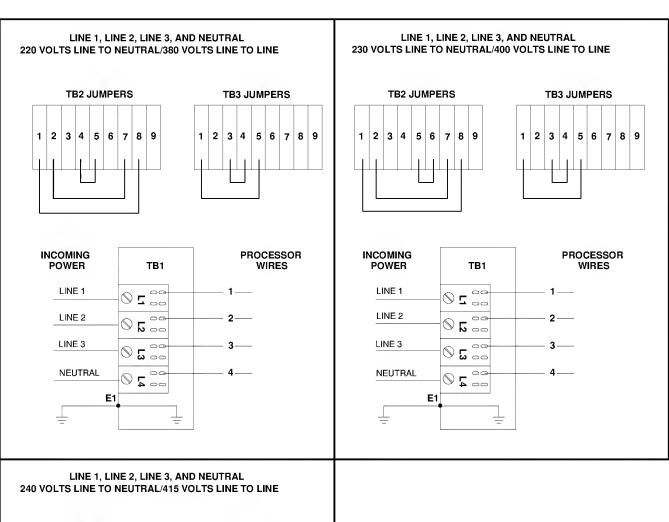
H104_9043EC

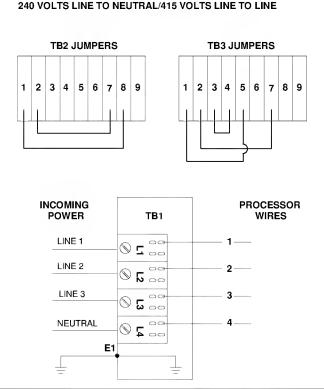


H104_9044EC



H104_9045EC





H104_9046EC

Making the Plumbing Connections

Connecting the Water Supply

[1] Connect the incoming water supply to the WATER SUPPLY INLET. Figures 20 and 21 show the complete water-to-PROCESSOR layout and connecting fittings.

NOTE

- A mixing valve is not required for the PROCESSOR if the incoming water temperature is between 4° and 29°C (40° and 85°F). However, tempered water is recommended for mixing chemicals and cleaning the processing TANKS.
- The PROCESSOR has an internal 12.7 cm (5 in.) water gap in the WASH RACK. A Check Valve (or Vacuum Breaker) should not be necessary; however, check and observe local codes.
- The PROCESSOR accepts water pressure from 170 690 kPa (25 100 psi). Higher pressures may cause the WATER INPUT SOLENOID to malfunction. A water pressure of 410 kPa (60 psi), or higher, may increase noise. If necessary, install a Regulator.
- A 50 micron Water Filter is required (not supplied by Kodak) in the input line.

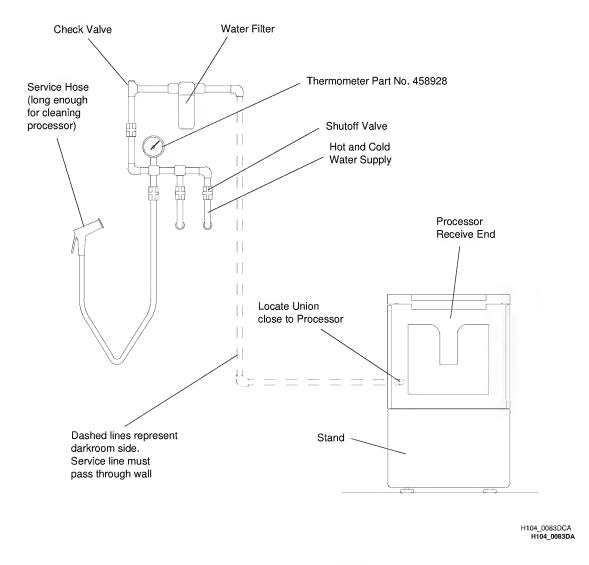


Figure 20 Connecting the Water Supply

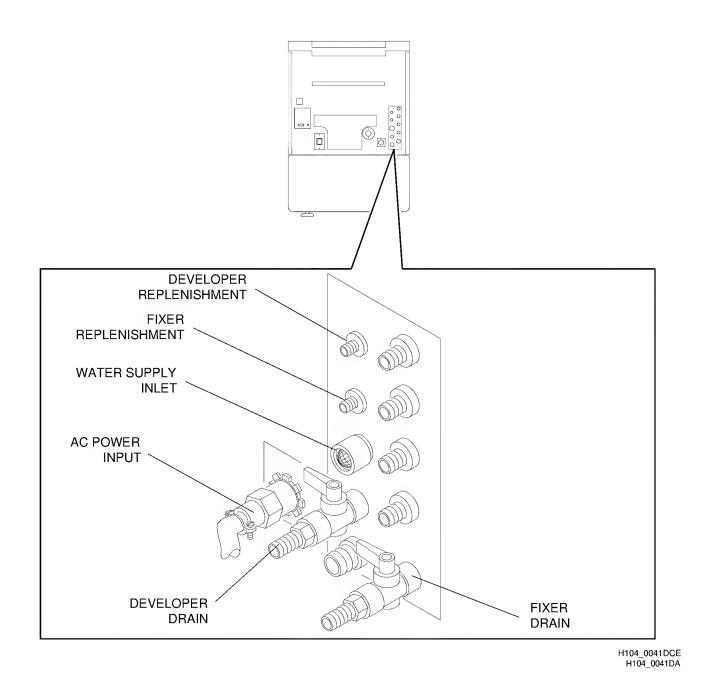


Figure 21 Connecting the Water Supply and Replenishment Lines

Connecting the Replenisher Tanks and Strainers

NOTE

- Installations may use internal or external REPLENISHER TANKS or a chemical mixing system, such as a Kodak AUTOMIXER III.
- Use the manufacturer's installation instructions to install a chemical mixing system.
- [1] Place the customer's REPLENISHER TANKS or chemical mixing system in position and connect. Use ¾ in. ID tubing, Part No. 452990, which you can order by the foot.
- [2] Install the STRAINERS in the lines between the PROCESSOR and the REPLENISHER TANKS or chemical mixing system. See Figure 23.
- [3] Connect the replenishment lines correctly to the feed end of the PROCESSOR. See Figures 21 and 23.

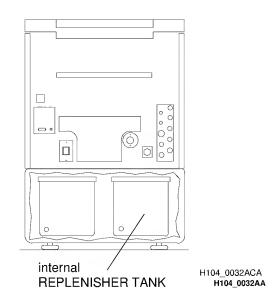


Figure 22 Installing Internal Replenisher Tanks

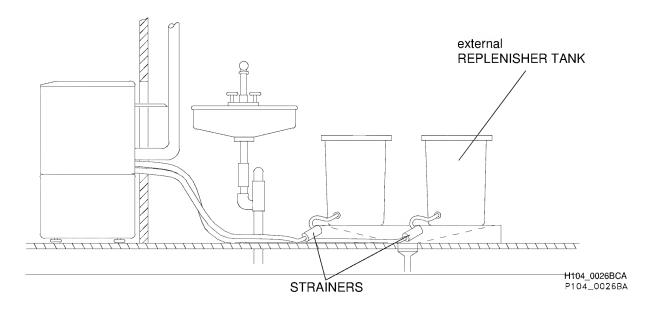


Figure 23 Connecting the Replenisher Strainers

Installing the Silver Recovery Units

If the customer is using a *Kodak* Chemical Recovery Cartridge Model II or the Junior Model II, install it now. If the PROCESSOR is without a STAND, only the Junior Model II can be used. A PROCESSOR connection kit for recirculating silver recovery units may be needed.

NOTE

When installing the kit, use the installation instructions packed with the kit.

Connecting the Drains and the Exhaust Hose

WARNING

- Drains must be made of chemically resistant, non-corrosive material. Use PVC or the equivalent. Do not use copper or brass.
- The drain must have a minimum diameter of 7.6 cm (3 in.) and be free of obstruction.
- · Drain service must comply with all local codes.
- Do not make a solid connection between the hoses and the drain.
- The drain line should slope gradually downward to the floor drain.
- [1] Check that the DEVELOPER and FIXER DRAIN are closed.

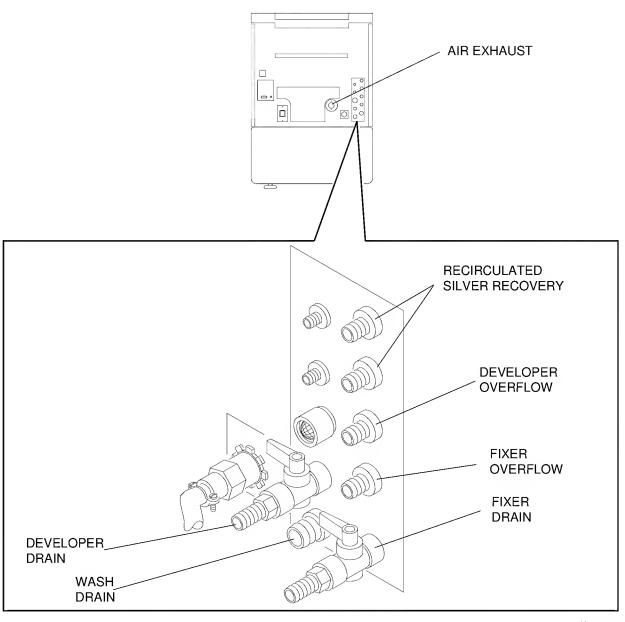
IMPORTANT

Any restriction such as a kinked or upward sloping hose from the WASH DRAIN can cause the draining wash water to move back into the WASH TANK. This can cause an overflow of water onto the ELECTRICAL BOX. Correctly route the hose so that it slopes toward the floor drain. REINFORCED HOSE, which will not kink, and right-angle ELBOWS for entering the drain are available from Service Parts Management. Order the following parts, if necessary:

- 696442 Reinforced Hose, 5/8 in. ID, order by the foot
- 1C4521 Elbow, 5/8 in.
- 696441 Reinforced Hose, 1 in. ID, order by the foot
- 1C4524 Elbow, 1 in.
- [2] Connect the following to the floor drain and route the hoses as required.
 - DEVELOPER OVERFLOW
 - DEVELOPER DRAIN
 - FIXER DRAIN
 - FIXER OVERFLOW to the floor drain or the CHEMICAL RECOVERY CARTRIDGE if used
 - WASH OVERFLOW/DRAIN
- [3] Connect the EXHAUST HOSE to the AIR EXHAUST on the PROCESSOR.
- [4] Check the negative Static Pressure. See the Venting procedure in the Site Specifications, Publication Part No. 2B6842.

NOTE

Tubing is not supplied.



H104_0041DCD H104_0041DA

Figure 24 Connecting the Drains and the Air Exhaust

286843 29

Installing and Adjusting the Feed Shelf

[1] Using the 4 SCREWS, 4 LOCK WASHERS, and 4 WASHERS, install the FEED SHELF onto the PROCESSOR.

NOTE

Do not tighten the SCREWS.

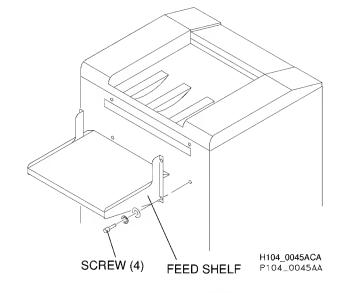


Figure 25 Installing the Feed Shelf

- [2] Adjust the position of the FEED SHELF to approximately 1 mm (1/16 in.) below the NIP of the DETECTOR CROSSOVER ENTRANCE ROLLERS.
- [3] Tighten the 4 SCREWS.

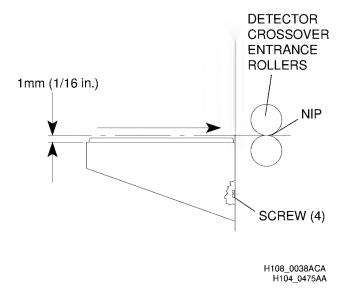


Figure 26 Adjusting the Feed Shelf

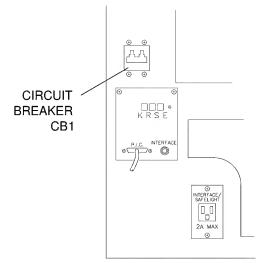
Checking for Correct Operation

- [1] Remove the other external PANELS from the PROCESSOR, and open the TOP COVER.
- [2] To allow correct operation of the LEVEL SENSORS, add 500 mL (8 fl oz) of developer to the DEVELOPER TANK and 500 mL (8 fl oz) of fixer to the FIXER TANK.
- [3] Slowly, fill the DEVELOPER and FIXER TANKS with water to the overflow limit.

NOTE

If the RECIRCULATION PUMP does not energize, check that the FIXER and DEVELOPER TANKS are full. If the TANKS are full and the RECIRCULATION PUMP does not energize, do the following:

- a. Connect the PORTABLE
 COMPUTER using INTERFACE
 CABLE TL-4391.
- Using the DIAGNOSTICS DISKETTE 699574, enter the "Specific Mode" to manually operate the RECIRCULATION PUMP.
- c. Energize the RECIRCULATION PUMP for approximately 5 seconds to remove air from the plumbing system.
- d. Return to normal operating mode.
- [4] Move the wall power switch to the "ON" position.
- [5] Move the CIRCUIT BREAKER CB1 on the PROCESSOR to the "|" position.
- [6] When the electronics self-check is complete, check that the WATER INPUT SOLENOID, the DRYER BLOWER, and the DRYER HEATER energize.
- [7] Check that water is draining smoothly.
- [8] With the PANELS removed, check the complete plumbing system for leakage.



H104_0389ACB H104_0389AA

- [9] Remove the DEVELOPER MANDREL.
- [10] Remove the WING NUT from the DEVELOPER MANDREL.
- [11] Install:
 - DEVELOPER FILTER onto the DEVELOPER MANDREL
 - WING NUT
 - DEVELOPER MANDREL in the DEVELOPER TANK
- [12] Check that the DEVELOPER MANDREL is correctly seated.
- [13] Install the external PANELS.
- [14] Close the TOP COVER.
- [15] Allow approximately 15 minutes for the "Ready" light on the DISPLAY PANEL to illuminate.
- [16] Check that the correct developer temperature is displayed on the DISPLAY PANEL. See the Operator Manual, Publication Part No. 2B6841, for the procedure to determine that the temperature displayed is correct.
- [17] Feed several sheets of **processed** film into the PROCESSOR, and check that the TRANSPORT SYSTEM operates correctly.
- [18] Move CIRCUIT BREAKER CB1 to the "O" position.
- [19] Drain the TANKS of water.
- [20] Mix the chemicals and fill the processing TANKS. See the Operator Manual, Publication Part No. 2B6841.

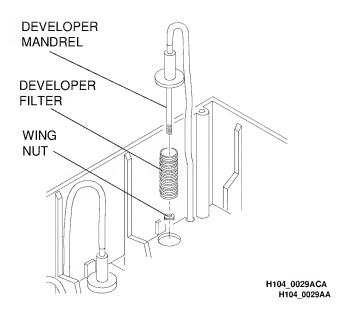
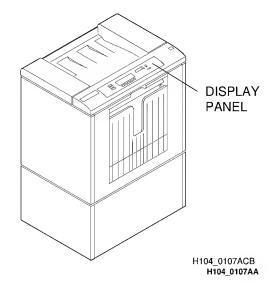


Figure 27 Installing the Filter on the Developer Mandrel



3059II_S.txt

Publication Change Table						
Revision Date	ECO No.	PCN No.	PCN Pub. No.	Affected Pages	Filename	Description
May 1994	2592-265	1	2B6843	All	3059ii_s.txt	Supersedes Installation Instructions, Publication No. 636715, dated 4/91. Updates information and illustrations throughout.

3059ii_s.txt

Kodak and X-Omat are trademarks.

Health Sciences Division Kodak